MAXDATA PLATINUM 820R Server

User's Manual

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1 Setting up the System

Server Position

Please take note of the following criteria for creating a practical and safe workplace when setting up your computer:

CAUTION

The system can be used anywhere the temperature is suitable for people. However, rooms with humidity over 70%, and dusty or dirty areas are not appropriate. In addition, do not expose the server to any temperatures over +35°C or under +10°C.

CAUTION

Make sure that the cables connecting the server to peripheral devices are not tight.

CAUTION

Make sure that all power and connection cables are positioned so that they are not trip hazards.

CAUTION

When you save data to your server's hard disks or to a floppy disk, they are stored as magnetic information on the media. Make sure that they are not damaged by magnetic or electromagnetic fields.

CAUTION

Because the electronics in your computer can be damaged by jarring, no mechanical devices should be placed on the same surface as the server. This is especially important for impact printers whose vibrations could damage the hard disk.

CAUTION

Hazardous conditions, devices and cables: Hazardous electrical conditions may be present on power, telephone, and communication cables. Turn off the server and disconnect the power cord, telecommunications systems, networks, and modems attached to the server before opening it. Otherwise, personal injury or equipment damage can result.

CAUTION

Electrostatic discharge (ESD) and ESD protection: ESD can damage disk drives, boards, and other parts. We recommend that you perform all procedures in chapter 3 only at an ESD workstation. If one is not available, provide some ESD protection by wearing an antistatic wrist strap attached to chassis ground - any unpainted metal surface - on your server when handling parts.

ATTENTION

In order to fully separate the server from current, the power cord must be removed from the wall outlet.

Powering up the System

At the front of the case, you can find the neccessary controls like power button, reset button and the HDD LEDs. Press the power button one time briefly in order to boot the server.

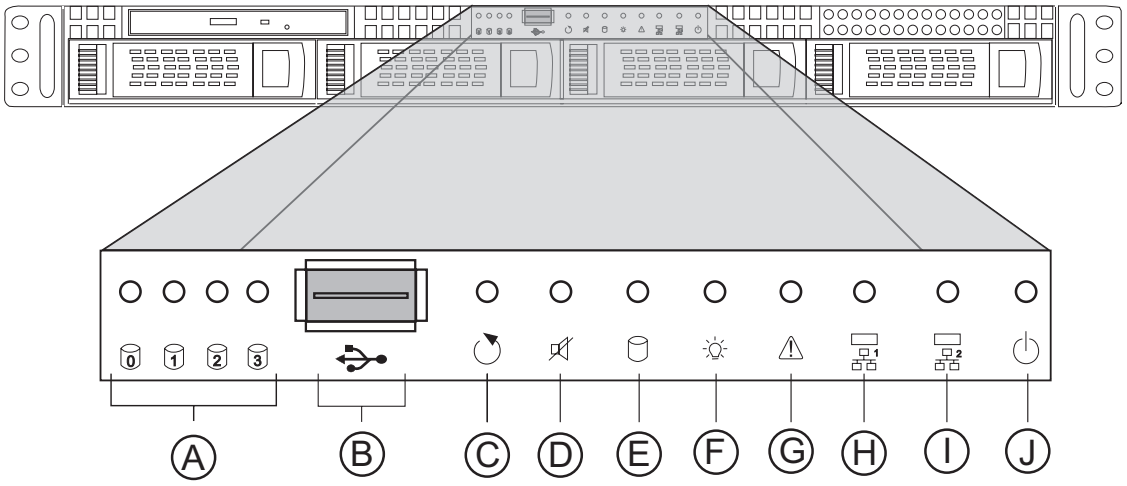

Figure 1. Front View

A. HDD Tray Activity LEDs

B. USB 2.0 Port

C. Reset Button

D. Fan Alarm Mute Button

E. System HDD Activity LED

F. Power LED

G. Failure LED

H. NIC Activity LED 1

I. NIC Activity LED 2

J. Power Button

2 Server Board Features

This chapter briefly describes the main features of the Server Board SE7210TP1-E. It provides a list of the server board features, and diagrams showing the location of important components and connections on the server board.

Table 1 summarizes the major features of the server board.

Table 1. Server Board Features

Feature	Description
Processors	Support for an Intel® Pentium® 4 processor in an mPGA478 package with a 800/533/400 MHz system bus
Memory	• Four 184-pin DDR SDRAM Dual Inline Memory Module (DIMM) sockets • Support for up to 4 GB Unbuffered ECC system memory • Support for single-sided or double-sided DIMMs (DDR266/333/400) - To run DDR400 memory at full speed requires an Intel® Pentium® 4 processor with 800 MHz system bus frequency. - To run DDR333 memory at full speed requires an Intel® Pentium® 4 processor with 533 MHz system bus frequency. DDR333 memory will run at 320 MHz frequency when using an Intel® Pentium® 4 processor with system bus frequency of 800 MHz. - DDR266 memory may only be used with an Intel® Pentium® 4 processor with 400 MHz or 533 MHz system bus frequency.
Chipset	Intel® 827210 chipset, consisting of: • Intel® 827210 Memory Controller Hub (MCH) • Intel® 6300ESB I/O Controller Hub • Intel® 82802AC 8 Megabit Firmware Hub (FWH)
I/O Control	Winbond W83627HF-AW LPC Bus I/O controller chip
Peripheral Interfaces	• Three external USB 2.0 ports on the back panel with an additional internal header, which provides support for one additional USB port for front panel support (four total possible USB 2.0 ports) • One serial port and one serial header • Two IDE interfaces with Ultra 33, 66 and 100 DMA mode • Two Serial ATA connectors with support for RAID 0 and 1 • One floppy drive interface with support for one drive • PS/2 keyboard and mouse ports
LAN	• One Intel® 82547EI Platform LAN Connect (PLC) device for 10/100/1000 Mbits/second Ethernet LAN connectivity • One Intel® 82551QM device for 10/100 Mbits/second Ethernet LAN connectivity
Expansion Capabilities	• Two independent PCI buses (one 32-bit, 33 MHz, 5 V; one 64-bit, 66 MHz, 3.3V) with four bus connectors: • Three PCI-X 64-bit PCI slots • One 32-bit PCI slot
Integrated Capabilities	• Integrated 2D/3D graphics controller: ATI Rage XL Video Controller with 8 MB of SDRAM
Fans	Support for up to six system fans and one processor fan

BIOS	Intel/AMI BIOS with support for: • Advanced Configuration and Power Interface (ACPI) • 8 megabit symmetrical flash memory • Support for SMBIOS
Power Management	Support for ACPI: • Suspend to RAM (STR) • Wake on USB, PCI, RS-232, PS/2, LAN, and front panel
Server Management	Intel® Server Management 5.8 support via mini Baseboard Management Controller (mBMC)

Server Board Connector and Component Locations

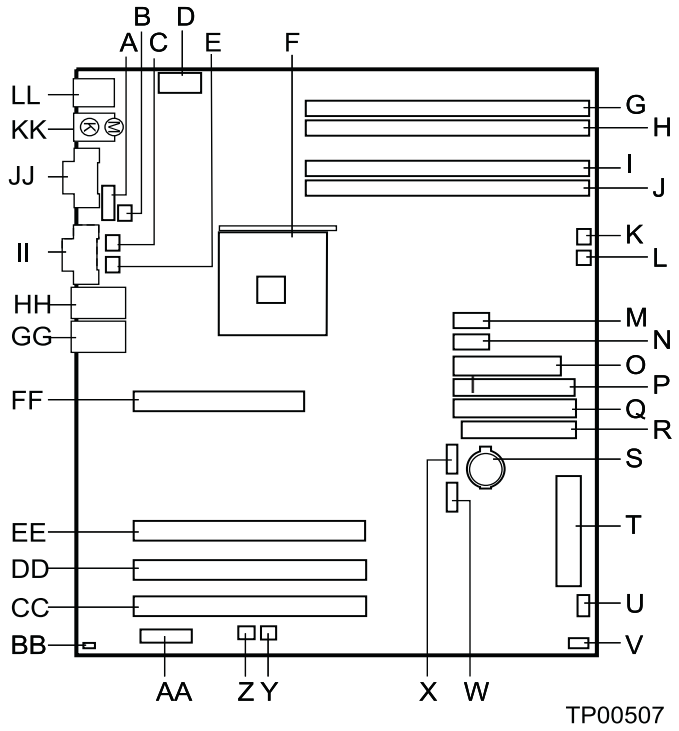

Figure 2. Board Connector and Component Locations

A.	Serial B Header	**T.**	Front Panel Connector
B.	CPU Fan Header	**U.**	Hot Swap Backplane Header
C.	Sys Fan Header 3	**V.**	SCSI LED Header
D.	+12 V CPU Power Connector	**W.**	SATA-A1 Connector
E.	Sys Fan Header 4	**X.**	SATA-A2 Connector
F.	Processor Socket	**Y.**	Sys Fan Header 6
G.	DIMM 2B Socket	**Z.**	Sys Fan Header 5
H.	DIMM 2A Socket	**AA.**	Jumper Block
I.	DIMM 1B Socket	**BB.**	Chassis Intrusion Header
J.	DIMM 1A Socket	**CC.**	PCI-X Slot 1, 64/66 RAIDIOS
K.	Sys Fan Header 1	**DD.**	PCI-X Slot 2, 64/66
L.	Sys Fan Header 2	**EE.**	PCI-X Slot 3, 64/66
M.	Front Panel USB Header	**FF.**	PCI Slot 6, 32/33
N.	Aux Power Connector	**GG.**	NIC 2 (10/100 Mbit)
O.	Main Power Connector	**HH.**	NIC 1 (1 Gbit)
P.	Secondary IDE Connector	**II.**	Video Connector
Q.	Primary IDE Connector	**JJ.**	Serial A Connector
R.	Floppy Connector	**KK.**	Keyboard and Mouse
S.	Battery	**LL.**	USB Connectors

Configuration Jumpers

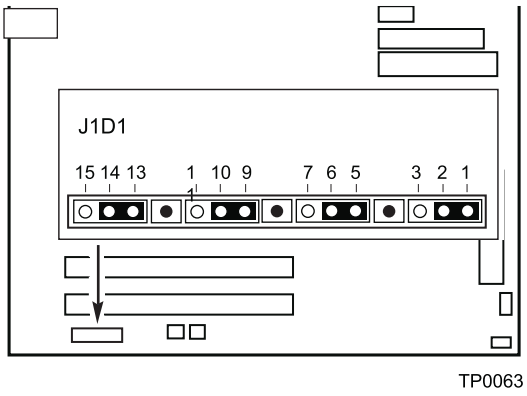

Figure 3. Configuration Jumper Location

Table 2. Configuration Jumpers [J1D1]

Jumper Name	Pins	What happens at system reset
CMOS clear	**2-3**	If these pins are jumpered, the CMOS settings will be cleared on the next reset. These pins should be jumpered on 1-2 for normal operation.
Password Clear	**6-7**	If these pins are jumpered, administrator and user passwords will be cleared on the next reset. These pins should be jumpered on 5-6 for normal operation.
BIOS Flash Write Protect	**11-12**	If these pins are jumpered, it is possible to update the BIOS Boot Block code. These pins should be jumpered on 10-11 for normal operation and for normal BIOS operational updates.
BIOS Recovery	**14-15**	If these pins are jumpered, the system will attempt to recover the BIOS by loading the BIOS code into the flash device from a floppy disk. This jumper is typically only used when the BIOS has become corrupted. These pins should be jumpered on 13-14 for normal operation.

Rear Connectors

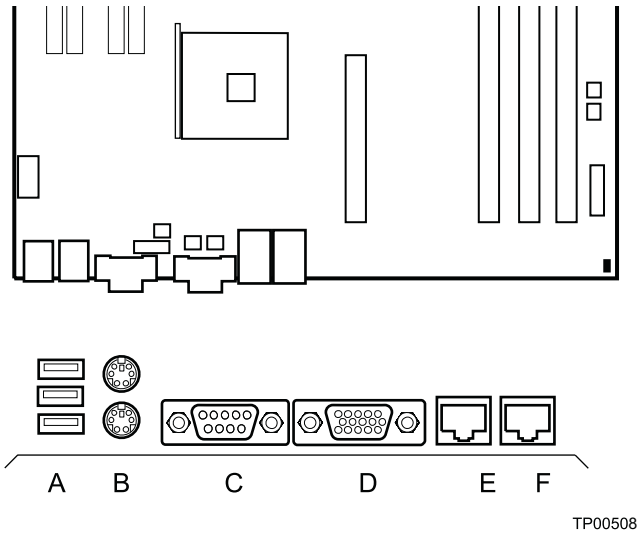

Figure 4. Back Panel Connectors

A. USB 1, 2, 3

B. Keyboard/mouse

C. Serial port A

D. Video

E. NIC1 (1Gbit)

F. NIC2 (10/100 Mbit)

The NIC LEDs at the right and left of each NIC provide the following information.

Table 3. NIC LEDs

NIC	LED Color	LED State	Description
NIC2 (10/100 Mbit)	Left LED	Off	10 Mbps connection (if right LED is on)
		Solid Green	100 Mbps connection
	Right LED	On	Network connection in place
		Blinking Green	Transmit/receive activity
NIC1 (Gigabit)	Left LED	Off	No network connection
		Solid Amber	Network connection in place
		Blinking Amber	Transmit/receive activity
	Right LED	Off	10 Mbps connection (if left LED is on or blinking)
		Solid Amber	100 Mbps connection
		Solid Green	1000 Mbps connection

Hardware Requirements

Processor

A minimum of one Intel® Pentium® 4 Processor 2.0 GHz with 512 KB Cache cache support is required.

Memory

A minimum of one 128 MB Unbuffered, ECC or non-ECC, DDR266-, DDR333- or DDR400- compliant, 184-pin DIMMs.

All memory components and DIMMs used with the server board must comply with the DDR specifications.

For best performance and dual-channel interleave operation, a minimum of two DIMMs must be installed and the DIMMs must be populated as follows:

- DIMM 1A and DIMM 2A: Populate these two sockets together first
- DIMM 1B and DIMM 2B: Populate these sockets in addition to DIMM 1A and DIMM 2A if four DIMMs are to be used
- When four DIMMs are installed, the system will use dual-channel interleave. For single-channel memory, a single DIMM can be installed in socket DIMM 1A.

✏ **NOTES**

Although the server board architecture allows the user to mix various sizes of DIMMs between channels, DIMMs must be identical within each bank.

To be fully compliant with all applicable DDR SDRAM memory specifications, the board should be populated with DIMMs that support the Serial Presence Detect (SPD) data structure. This allows the BIOS to read the SPD data and program the chipset to accurately configure memory settings for optimum performance. If non-SPD memory is installed, the BIOS will attempt to correctly configure the memory settings, but performance and reliability may be impacted or the DIMMs may not function under the determined frequency.

For ECC functionality, all installed DIMMs must be ECC. If both ECC and non-ECC DIMMs are used, ECC will be disabled and will not function.

3 Server Board Installations and Upgrades

Before You Begin

Before working with your server product, pay close attention to the safety instructions at the beginning of this manual.

Tools and Supplies Needed

- Phillips (cross head) screwdriver (#1 bit and #2 bit)
- Needle nosed pliers
- Antistatic wrist strap and conductive foam pad (recommended)

Installing a PCI Card

The PCI slots support full-height add-in cards or low profile PCI add-in cards. If a low profile card is installed in the standard full-height riser card, it must be equipped with a standard full-height PCI mounting bracket.

1. Remove the screw that attaches the PCI bracket shield to the rear of the chassis to remove the shield. Retain the screw.
2. Insert the PCI card into the PCI slot. Tipping it in the slot while installing it may damage the PCI card or slot.
3. Use the screw removed in step 1 to secure the PCI card to the chassis.

Replacing the Backup Battery

The lithium battery on the server board powers the RTC for up to 10 years in the absence of power. When the battery starts to weaken, it loses voltage, and the server settings stored in CMOS RAM in the RTC (for example, the date and time) may be wrong. Contact your customer service representative or dealer for a list of approved devices.

WARNING

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

ADVARSEL

Lithiumbatteri - Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabri kanten. Brukt batteri returneres apparatleverandøren.

VARNING

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekviva lent typ som rekommen deras av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittele maan tyyppiin. Hävitä käytetty paristo valmistajan oh jeiden mukaisesti.

1. Observe the safety and ESD precautions at the beginning of this book.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord from the server.
4. Remove the server's cover and locate the battery.
5. Insert the tip of a small flat bladed screwdriver, or an equivalent, under the tab in the plastic retainer. Gently push down on the screwdriver to lift the battery.
6. Remove the battery from its socket.

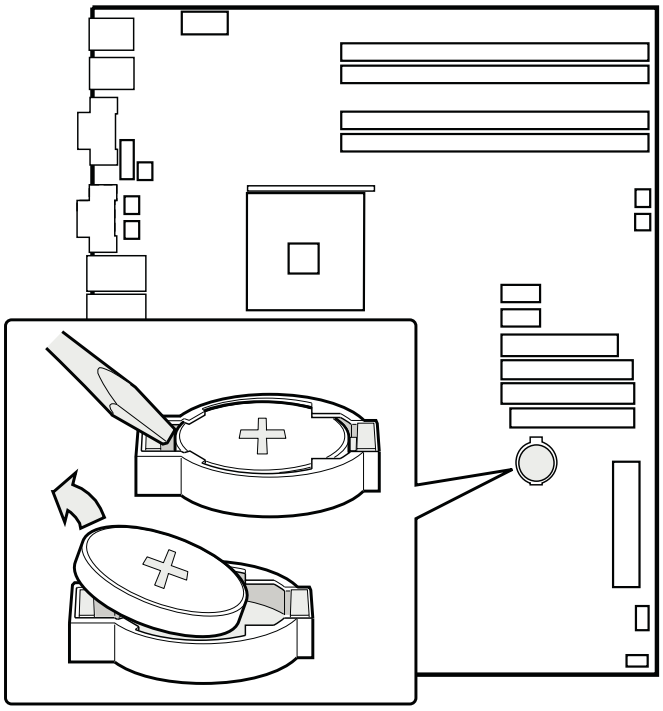

Figure 5. Replacing the Battery

7. Dispose of the battery according to local ordinance.
8. Remove the new lithium battery from its package, and, being careful to observe the correct polarity, insert it in the battery socket.
9. Close the chassis.
10. Run Setup to restore the configuration settings to the RTC.

4 Server Utilities

BIOS Setup

Table 4. Keyboard Commands

Press	Description
<F1>	Help - Pressing F1 on any menu invokes the general Help window.
← →	The left and right arrow keys are used to move between the major menu pages. The keys have no affect if a submenu or pick list is displayed.
↑	Select Item up - The up arrow is used to select the previous value in a menu item's option list, or a value field pick list. Pressing the Enter key activates the selected item.
↓	Select Item down - The down arrow is used to select the next value in a menu item's option list, or a value field pick list. Pressing the Enter key activates the selected item.
F5/-	Change Value - The minus key or the F5 function key is used to change the value of the current item to the previous value. This key scrolls through the values in the associated pick list without displaying the full list.
F6/+	Change Value - The plus key or the F6 function key is used to change the value of the current menu item to the next value. This key scrolls through the values in the associated pick list without displaying the full list. On 106-key Japanese keyboards, the plus key has a different scan code than the plus key on the other keyboard, but it has the same effect.
<Enter>	Execute Command - The Enter key is used to activate submenus when the selected feature is a submenu, or to display a pick list if a selected feature has a value field, or to select a sub-field for multi-valued features like time and date. If a pick list is displayed, the Enter key will undo the pick list, and allow another selection in the parent menu.
<Esc>	Exit - The ESC key provides a mechanism for backing out of any field. This key will undo the pressing of the Enter key. When the ESC key is pressed while editing any field or selecting features of a menu, the parent menu is re-entered. When the ESC key is pressed in any submenu, the parent menu is re-entered. When the ESC key is pressed in any major menu, the exit confirmation window is displayed and the user is asked whether changes can be discarded.
<F9>	Setup Defaults - Pressing F9 causes the following to appear: Setup Confirmation Load default configuration now? [Yes] [No] If "Yes" is selected and the Enter key is pressed, all Setup fields are set to their default values. If "No" is selected and the Enter key is pressed, or if the ESC key is pressed, the user is returned to where they were before F9 was pressed without affecting any existing field values.
<F10>	Save and Exit - Pressing F10 causes the following message to appear: Setup Confirmation Save Configuration changes and exit now? [Yes] [No] If "Yes" is selected and the Enter key is pressed, all changes are saved and Setup is exited. If "No" is selected and the Enter key is pressed, or the ESC key is pressed, the user is returned to where they were before F10 was pressed without affecting any existing values.

Clearing the Password

If the user or administrator password(s) is lost or forgotten, moving the password clear jumper into the "clear" position clears both passwords. The password clear jumper must be restored to its original position before a new password(s) can be set. The password clear jumper is located on jumper block J1D1.

1. Power down the system and disconnect the AC power.
2. Open the server chassis.
3. Move the jumper from pins 5 and 6 to the Clear Password position, covering pins 6 and 7.
4. Reconnect the AC power, power up the system.
5. Power down the system and disconnect the AC power.
6. Return the Password Clear jumper to the spare location, covering pins 5 and 6.
7. Close the server chassis.

Clearing the CMOS

If you are not able to access the BIOS setup screens, the CMOS Clear jumper will need to be used to reset the configuration RAM. The CMOS Clear jumper is located on jumper block J1D1.

1. Power down the system and disconnect the AC power.
2. Open the server.
3. Move the jumper from pins 1 and 2 to the Clear CMOS position, covering pins 2 and 3.
4. Reconnect the AC power, power up the system.
5. When the system begins beeping, power it down and disconnect the AC power.
6. Return the CMOS Clear jumper to the original location, covering pins 1 and 2.
7. Close the server chassis, reconnect the AC power and power up the system.

LED Information

The Server Board includes LEDs that can aid in troubleshooting your system. A table of these LEDs with a description of their use is listed below.

Table 5. LED Information

LED Name	Function	Location	Color	Correction
ID	Aid in server identification from the back panel	Front Panel and board rear left corner	Blue	Press ID LED button or user Server Management software to turn off the LED.
System fault	Visible fault warning	Front panel and board rear left corner	Green or Amber	• On = No Fault • Green Blink = degraded • Amber = critical error or non-recoverable • Amber blink = non-critical
IDE activity	Front panel	Front panel and board left side	Green	Blinking = Activity. No action required.
Memory fault 1–6	Identify failing memory module	DIMM end front of board	Amber	On = Fault
POST code 1–4 (LSB, bit1, bit2, MSB)	Display boot 80 POST code	Left rear of board	Each LED can be Off, Green, Amber, Red	See the POST code table
Fan Pack Fault	Warn on fan failure	Front center board	Amber	On = Fault
CPU 1 & 2 Fan Fault	Identify fan failure	Front center board	Amber	On = Fault
CPU 1 & 2 Fault	Identify processor failure	1" behind processor socket	Amber	On = Fault
5v Standby	Identify 5v standby power on state	Front left board	Amber	On = 5v standby power on
Power LED	Identify the power state of the system	Front Panel	Green	• Off = Power is off (off or S5) • On = Power on or S0) • Slow Blink = Low power state (S1 – S3)

BIOS Error Messages

When a recoverable error occurs during the POST, the BIOS displays an error message describing the problem (see Table 6).

Table 6. BIOS Error Messages

Error message	Explanation
GA20 Error	An error occurred with Gate A20 when switching to protected mode during the memory test.
Pri Master HDD Error Pri Slave HDD Error Sec Master HDD ErrorSec Slave HDD Error	Could not read sector from corresponding drive.
Pri Master Drive - ATAPI Incompatible Pri Slave Drive - ATAPI Incompatible Sec Master Drive - ATAPI Incompatible Sec Slave Drive - ATAPI Incompatible	Corresponding drive is not an ATAPI device. Run Setup to make sure device is selected correctly.
A: Drive Error	No response from diskette drive.
CMOS Battery Low	The battery may be losing power. Replace the battery soon.
CMOS Display Type Wrong	The display type is different than what has been stored in CMOS. Check Setup to make sure type is correct.
CMOS Checksum Bad	The CMOS checksum is incorrect. CMOS memory may have been corrupted. Run Setup to reset values.
CMOS Settings Wrong	CMOS values are not the same as the last boot. These values have either been corrupted or the battery has failed.
CMOS Date/Time Not Set	The time and/or date values stored in CMOS are invalid. Run Setup to set correct values.
DMA Error	Error during read/write test of DMA controller.
FDC Failure	Error occurred trying to access diskette drive controller.
HDC Failure	Error occurred trying to access hard disk controller.
Checking NVRAM.....	NVRAM is being checked to see if it is valid.
Update OK!	NVRAM was invalid and has been updated.
Updated Failed	NVRAM was invalid but was unable to be updated
Keyboard Error	Error in the keyboard connection. Make sure keyboard is connected properly.
KB/Interface Error	Keyboard interface test failed
Memory Size Decreased	Memory size has decreased since the last boot. If no memory was removed, then memory may be bad.
Memory Size Increased	Memory size has increased since the last boot. If no memory was added, there may be a problem with the system.
Memory Size Changed	Memory size has changed since the last boot. If no memory was added or removed, then memory may be bad.
No Boot Device Available	System did not find a device to boot
Off Board Parity Error	A parity error occurred on an off-board card. This error is followed by an address.

BIOS Error Messages (continued)

Error message	Explanation
On Board Parity Error	A parity error occurred in onboard memory. This error is followed by an address.
Parity Error	A parity error occurred in onboard memory at an unknown address.
NVRAM / CMOS / PASSWORD cleared by Jumper	NVRAM, CMOS, and passwords have been cleared. The system should be powered down and the jumper removed.
<CTRL_N> Pressed	CMOS is ignored and NVRAM is cleared. User must enter Setup.

BIOS POST Beep Codes

The table below lists the POST error beep codes. Prior to system video initialization, the BIOS uses these beep codes to inform users of error conditions. The beep code occurs only when a critical error occurs or when the BIOS fails to boot to the operating system. Please note that not all error conditions are supported by BIOS beep codes.

Table 7. BIOS Post Beep Codes

Number of Beeps	Description
1	Refresh failure
2	Parity cannot be reset
3	First 64 Kb memory failure
4	Timer not operational
5	Processor failure (Reserved; not used)
6	8042 GateA20 cannot be toggled (memory failure or not present)
7	Exception interrupt error
8	Display memory R/W error
9	(Reserved; not used)
10	CMOS Shutdown register test error
11	Invalid BIOS (such as, POST module not found)

An error or warning condition at boot can result in a series of beeps being issued known as "beep codes". These beeps have a code that identifies system or PCI card events. For example, some Intel® RAID cards have beep codes. Before checking for a system beep code error make sure the PCI card is not causing the beeping.

Regulatory and Compliance Information

Product Regulatory Compliance

Product Safety Compliance

The Server Board complies with the following safety requirements:

- EN 60 950 (European Union)
- CE – Low Voltage Directive (73/23/EEC) (European Union)

Product EMC Compliance

The Server Board has been tested and verified to comply with the following electromagnetic compatibility (EMC) regulations when installed into a compatible host system.

- EN55022 (Class A) – Radiated & Conducted Emissions (European Union)
- EN55024 (Immunity) (European Union)
- CE – EMC Directive (89/336/EEC) (European Union)

Product Regulatory Compliance Markings

This product is marked with the following Product Certification Markings:

Table 8. Product Certification Markings

CE Mark	

Electromagnetic Compatibility Notices

Europe (CE Declaration of Conformity)

This product has been tested in accordance too, and complies with the Low Voltage Directive (73/23/EEC) and EMC Directive (89/336/EEC). The product has been marked with the CE Mark to illustrate its compliance.